(FILE 'HOME' ENTERED AT 16:23:08 ON 10 OCT 2003)

FILE 'REGISTRY' ENTERED AT 16:23:18 ON 10 OCT 2003

L1 1 S DIFLUOROMETHANE/CN
L2 1 S DICHLOROMETHANE/CN
L3 1 S HYDROGEN FLUORIDE/CN

FILE 'CAPLUS, USPATFULL' ENTERED AT 16:24:32 ON 10 OCT 2003

L4 499 S L1 AND L2
L5 127 S L4 AND L3
L6 47 S L5 AND CHROMI?
L7 17 S L5 AND CHROMIUM OXIDE
L8 3 S L7 AND HYDROFLUORINATION
L9 0 S L1 (P) L2 (P) L3
L10 2 S L1 (P) L2
L11 14 S L7 NOT L8
L12 14 S L11 NOT L10
L13 13 DUP REM L12 (1 DUPLICATE REMOVED)
L14 13 S L13 AND CATALYST
L15 11 S L14 AND HYDROGEN FLUORIDE

L15 ANSWER 1 OF 11 CAPLUS COPYRIGHT 2003 ACS on STN
AN 2002:23840 CAPLUS
DN 136:71542
TI Fluorination **catalyst** and process for fluorinating halogenated hydrocarbons
IN Shibanuma, Takashi; Iwai, Yoshio; Koyama, Satoshi
PA Daikin Industries Ltd., Japan
SO U.S., 8 pp., Cont.-in-part of U.S. Ser. No. 886,822, abandoned.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6337299	B1	20020108	US 1993-52684	19930427
	US 5849658	A	19981215	US 1995-435166	19950505
	US 6300531	B1	20011009	US 1995-435178	19950505
PRAI	JP 1991-120132	A	19910524		
	US 1992-886822	B2	19920522		
	US 1993-52684	A1	19930427		

AB The **catalyst** comprises **chromium oxide** having a sp. surface area of 170-300 m2/g. The **catalyst** can catalyze the fluorination of halogenated hydrocarbons (e.g., 1,1,1-trifluorochloroethane) with HF and has a high activity and a long **catalyst** life.
RE.CNT 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 2 OF 11 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1997:496566 CAPLUS
DN 127:96813
TI Shaped heterogeneous fluorination **catalysts** and manufacture of halogenated hydrocabons with high catalytic activity, low pressure loss, and long **catalyst** life
IN Kanemura, Takashi; Kono, Satoshi; Kitano, Keisuke; Takahashi, Kazuhiro; Shibanuma, Shun
PA Daikin Industries, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09141105	A2	19970603	JP 1995-329853	19951124
PRAI	JP 1995-329853		19951124		

AB The (un)supported title **catalysts** based mainly on Cr, Cr oxide, Cr fluoride, and/or Cr oxyfluoride are hollow cylindrical with outer diam. 2-20 mm, inner/outer diam. ratio 0.1-0.7, and length 0.2-2.0 times the outer diam. Cr hydroxide from Cr nitrate and ammonium hydroxide was mixed with 3% graphite, compression molded (outer diam. 5 mm, inner diam. 2 mm, length 5 mm) and treated with HF-N at 200-360.degree. for 2 h and used as **catalyst** for reaction of HCFC-133a with HF with HFC-134a yield 12.3%.

L15 ANSWER 3 OF 11 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1995:589470 CAPLUS
DN 122:323362
TI Chromium-based fluorination **catalyst** for manufacture of hydrofluorocarbons from halogenated hydrocarbons
IN Tsuji, Katsuyuki; Nakaji, Tetsuo
PA Showa Denko K. K., Japan
SO Eur. Pat. Appl., 17 pp.

CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 641598	A2	19950308	EP 1994-113719	19940901
	EP 641598	A3	19950531		
	EP 641598	B1	19990107		
	R: BE, DE, ES, FR, GB, GR, IT, NL, PT				
	CA 2131361	AA	19950308	CA 1994-2131361	19940901
	JP 08038904	A2	19960213	JP 1994-212812	19940906
	JP 2996598	B2	20000111		
	CN 1105951	A	19950802	CN 1994-115127	19940907
	CN 1087189	B	20020710		
PRAI	JP 1993-222633	A	19930907		
	JP 1994-130850	A	19940523		

AB The **catalyst** is prepd. by firing a substance contg. Cr(OH)3 in the presence of H at a temp. of 350-500.degree. or by heat-treating the Cr(OH)3 in an inert gas stream at a temp. of 100-600.degree. and then firing the heat-treated compd. in the presence of H at the above temp. to grow cryst. Cr2O3. The **catalyst** is then fluorinated with HF at 300-500.degree.. Halogenated C1-4 hydrocarbon are brought into contact with gaseous HF in the presence the **catalyst** to produce hydrofluorocabons (HFC) and hydrochlorofluorocarbon (HCFC). High yields of HFC's and HCFC's are obtained at relatively low temps.

L15 ANSWER 4 OF 11 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1995:453483 CAPLUS
DN 122:293893
TI Manufacture of difluoromethane from dichloromethane
IN Tanaka, Kunitada; Shibanuma, Takashi
PA Daikin Ind Ltd, Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 07017882	A2	19950120	JP 1993-191942	19930705
PRAI	JP 1993-191942		19930705		

AB CH2F2 (I) is manufd. by reaction of CH2Cl2 (II) with HF in liq. phase in the presence of SbClxFy (x + y = 5; y = 1-3) **catalysts** and treating the resulted CH2FCl (III) with **catalysts** in liq. or gas phases or treating with HF in the presence of **catalysts** in gas phases. Thus, II was treated with HF in the presence of SbCl2F3 (prepd. from SbCl5 and HF) at 80.degree. under 10 kG pressure. I and HCl followed by HF were removed from the product, and the residual III was passed through Cr oxide at 150.degree. and 80 mL/min to give 35.6 mL/min I.

L15 ANSWER 5 OF 11 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1994:680250 CAPLUS
DN 121:280250
TI Preparation of difluoromethane
IN Bonniface, David William; Scott, John David; Watson, Michael John
PA Imperial Chemical Industries PLC, UK
SO PCT Int. Appl., 15 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

PI WO 9421579 A1 19940929 WO 1994-GB497 19940314
W: AU, BR, CA, CN, FI, JP, KR, NO, RU, UA, US
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE
CA 2157528 AA 19940929 CA 1994-2157528 19940314
CA 2157878 AA 19940929 CA 1994-2157878 19940314
AU 9462133 A1 19941011 AU 1994-62133 19940314
AU 691486 B2 19980521
BR 9406236 A 19960109 BR 1994-6236 19940314
EP 690832 A1 19960110 EP 1994-909203 19940314
EP 690832 B1 19980520
R: BE, DE, ES, FR, GB, IE, IT, LU, NL, PT
CN 1119431 A 19960327 CN 1994-191525 19940314
CN 1057750 B 20001025
CN 1119432 A 19960327 CN 1994-191526 19940314
CN 1044227 B 19990721
JP 08508028 T2 19960827 JP 1994-520763 19940314
ES 2115940 T3 19980701 ES 1994-909203 19940314
ES 2116586 T3 19980716 ES 1994-909204 19940314
RU 2116288 C1 19980727 RU 1995-118158 19940314
RU 2127246 C1 19990310 RU 1995-121816 19940314
ZA 9401818 A 19940926 ZA 1994-1818 19940315
ZA 9401826 A 19940926 ZA 1994-1826 19940315
US 5672786 A 19970930 US 1995-507429 19950906
PRAI GB 1993-6072 A 19930324
GB 1993-6089 A 19930324
WO 1994-GB497 W 19940314
OS CASREACT 121:280250
AB CH2F2 was prepd. by (a) contacting CH2Cl2 with HF in the presence of a fluorination **catalyst** to produce a product stream comprising CH2F2, CH2ClF, and unreacted starting materials and (b) sepg. CH2F2 from the product stream from step (a); sufficient HF is employed in the process such that during step (b) the molar ratio of HF to CH2ClF is .gtoreq.100:1. The high ratio of HF to CH2ClF mitigates toxicity problems assocd. with the latter compd. Thus, a tube reactor contg. Zn/Cr oxide **catalyst** was pretreated with HF at 300.degree. for 24 h; the reactor was cooled to 250.degree., pressurized with 10 bar N, and a 27.1:1 molar ratio of HF:CH2Cl2 was introduced. The product stream was scrubbed with water to remove HF and HCl leaving a mixt. of CH2Cl2 1.0, CH2ClF 7.1, and CH2F2 92.0 vol. %.

L15 ANSWER 6 OF 11 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1982:491669 CAPLUS
DN 97:91669
TI **Catalyst** for fluorination of organic chlorocompounds
AU Marangoni, Luigi; Rasia, Giorgio; Gervasutti, Claudio; Colombo, Luigi
CS Div. Prodotti, Montedison S.p.A., Venice, Italy
SO Chimica e l'Industria (Milan, Italy) (1982), 64(3), 135-40
CODEN: CINMAB; ISSN: 0009-4315
DT Journal
LA English
AB Cr(OH)3 free of ionic impurities [from NH4OH pptn. of dil. KCr(SO4)2.cntdot.12H2O] was dried and calcined at 450-550.degree. to give a long lived fluorination **catalyst**. The gaseous fluorination of CCl4, CHCl3, CH2Cl2, C2Cl6, C2HCl5, ClCH:CCl2, C2Cl4, C2Cl3F3, C2Cl2F4, (CCl3)2CO, and CF3CH2Cl with HF over the **catalyst** is described.

L15 ANSWER 7 OF 11 USPATFULL on STN
AN 2002:69975 USPATFULL
TI Process for the production of difluoromethane
IN Clemmer, Paul Gene, Williamsville, NY, United States
Smith, Addison Miles, Amherst, NY, United States
Tung, Hsueh Sung, Getzville, NY, United States
Bass, John Stephen, East Amherst, NY, United States
PA AlliedSignal Inc., Morristown, NJ, United States (U.S. corporation)

PI US 6365580 B1 20020402
AI US 1999-425150 19991021 (9)
RLI Division of Ser. No. US 1997-959748, filed on 28 Oct 1997 Division of Ser. No. US 1995-530649, filed on 20 Sep 1995, now patented, Pat. No. US 5763708
DT Utility
FS GRANTED
EXNAM Primary Examiner: Pryor, Alton
LREP Szuch, Colleen D.
CLMN Number of Claims: 12
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 338
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention provides a vapor phase process for the production of difluoromethane, HFC-32. The process of this invention provides for the preparation of HFC-32 by a process that exhibits both good product yield and selectivity.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L15 ANSWER 8 OF 11 USPATFULL on STN
AN 1999:117737 USPATFULL
TI Method for concurrently producing different hydrofluoro carbons
IN Kim, Hoon Sik, Seoul, Korea, Republic of
Chung, Moon Jo, Seoul, Korea, Republic of
Park, Kun You, Seoul, Korea, Republic of
Kwon, Young Soo, Seoul, Korea, Republic of
PA Korea Institute of Science and Technology, Seoul, Korea, Republic of (non-U.S. corporation)
PI US 5959166 19990928
AI US 1997-966093 19971107 (8)
RLI Continuation of Ser. No. US 1995-496498, filed on 29 Jun 1995, now abandoned
PRAI KR 1994-15934 19940704
DT Utility
FS Granted
EXNAM Primary Examiner: Siegel, Alan
LREP Darby & Darby
CLMN Number of Claims: 24
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 690
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A method for concurrently producing different hydrofluoro carbons, comprising the reaction of halocarbon or hydrohalocarbon with **hydrogen fluoride** in a reaction system consisting of a series of at least two discrete reactors, in the presence of **catalysts**, said reactors each being provided with different reactant materials and differing in reaction conditions including the **catalysts** and/or reaction temperature, thereby flexibly controlling their production rates in accordance with fluctuations in their demand, and eliminating the risk of constructing large scale plants responsible for individual hydrofluorocarbons.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L15 ANSWER 9 OF 11 USPATFULL on STN
AN 1999:53725 USPATFULL
TI Synthesis of difluoromethane
IN Requieme, Benoit, Charly, France
Lacroix, Eric, Amberieux D'Azergues, France
Lantz, Andre, Vernaison, France
PA Elf Atochem S.A., Paris La Defense, France (non-U.S. corporation)

PI US 5900514 19990504
AI US 1996-663977 19960614 (8)
PRAI FR 1995-7705 19950627
DT Utility
FS Granted
EXNAM Primary Examiner: Geist, Gary; Assistant Examiner: Vollano, Jean F.
LREP Bell, Bond & Lloyd
CLMN Number of Claims: 10
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 402
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention relates to the manufacture of difluoromethane by catalytic gas-phase fluorination of methylene chloride.

The operation is carried out in the presence of oxygen at a temperature of between 330 and 450.degree. C. and with a bulk or supported chromium **catalyst**.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L15 ANSWER 10 OF 11 USPATFULL on STN
AN 1998:157560 USPATFULL
TI Method for producing difluoromethane and 1,1,1,2-tetrafluoroethane
IN Homoto, Yukio, Osaka, Japan
Tanaka, Kunitada, Osaka, Japan
Shibanuma, Takashi, Osaka, Japan
Komatsu, Satoshi, Osaka, Japan
Koyama, Satoshi, Osaka, Japan
PA Daikin Industries, Ltd., Osaka, Japan (non-U.S. corporation)
PI US 5849963 19981215
WO 9515937 19950615
AI US 1996-656229 19960607 (8)
WO 1994-JP2070 19941209
19960607 PCT 371 date
19960607 PCT 102(e) date
PRAI JP 1993-309523 19931209
DT Utility
FS Granted
EXNAM Primary Examiner: Rotman, Alan L.
LREP Birch, Stewart, Kolasch & Birch, LLP
CLMN Number of Claims: 14
ECL Exemplary Claim: 1
DRWN 6 Drawing Figure(s); 3 Drawing Page(s)
LN.CNT 842
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB According to the method for producing difluoromethane and 1,1,1,2-tetrafluoroethane, having the steps of:

(1) reacting methylene chloride and 1,1,2-trichloroethylene with **hydrogen fluoride** in a vapor phase In the presence of a fluorinating **catalyst** and 1,1,1,2-tetrafluoroethane in a first reactor; and

(2) reacting 1,1,1-trifluorochloroethane with **hydrogen fluoride** in a vapor phase in the presence of a fluorinating **catalyst** in a second reactor, and supplying the reaction mixture from the second reactor to the first reactor, HFC-32 can be obtained in high conversion and high selectivity by fluorinating HCC-30 using commonly a large (excess) amount of HF which is required for producing HFC-134a.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L15 ANSWER 11 OF 11 USPATFULL on STN
AN 1998:65485 USPATFULL
TI Process for the production of difluoromethane
IN Clemmer, Paul Gene, Williamsville, NY, United States
Smith, Addison Miles, Amherst, NY, United States
Tung, Hsueh Sung, Getzville, NY, United States
Bass, John Stephen, East Amherst, NY, United States
PA Allied Signal Inc., Morris township, Morris County, NJ, United States (U.S. corporation)
PI US 5763708 19980609
AI US 1995-530649 19950920 (8)
DT Utility
FS Granted
EXNAM Primary Examiner: Dees, Jose G.; Assistant Examiner: Pryor, Alton
LREP Gianneschi, Lois A.
CLMN Number of Claims: 9
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 346
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention provides a vapor phase process for the production of difluoromethane, HFC-32. The process of this invention provides for the preparation of HFC-32 by a process that exhibits both good product yield and selectivity.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.